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October 12, 2001

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Ms. Magalie R. Salas
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Written Ex Parte Presentation of US GPS Industry Council;
ET Docket 98-153

Dear Ms. Salas:

Pursuant to Section 1.206 of the Commission's Rules, 47 CFR Sec. 1.1206, please find enclosed a written ex parte presentation that was on this date sent to the Commission personnel listed below. The attached document sets out a rationale for the regulation of ultra wideband ground penetrating radars in a manner that allows for the introduction of this technology while minimizing interference to existing services.

An original and one copy of this letter are being submitted for inclusion in the record of the suibject proceeding.

Respectfully submitted,

Raul R. Rodriguez
For the US GPS Industry Council

RRR/rjc

Enclosure

cc w/ encl.: Dr. Julius P. Knapp
Mr. John A. Reed
Ms. Karen Rackley
Mr. Mike Marcus

No. of Copies rec'd 0+1
List ABCDE

Rationale for Regulation of UWB GPRs

Ex Parte Presentation

U.S. GPS Industry Council

October 12, 2001

Request for Rule-Making Requirements

- UWB GPRs below 1 GHz
- License operations on a non-interfering basis
- Any UWB transmission device containing one or more of the attributes of a communications device shall be considered a communications device and specifically excluded from this rule

Rationale for Rule-Making Requirements

- Market is small, professional, and mobile ("maximum numbers in a major city will never exceed 10s to 100s")
- Only technology growth path indicated in this presentation involves increasing power above Part 15 levels; could motivate increases in pulse repetition rate
- Unacceptable risk for safety-of-life

Rationale for Rule-Making Requirements (2)

- With the exception of concrete penetrating radar for construction, all applications enumerated operate below 1 GHz
- Most existing GPRs use pulse repetition rates in the 10 to 500 KHz range
  - More than half of the UWB/GPS scenarios with UWB pulse repetition rates of less than 500 KHz tested by NTIA show interference with GPS at levels below Part 15 limits

How to Tell the Difference Between UWB Radar and UWB Communications Devices

- UWB Ground Penetrating Radar (GPR):
  - The intended use of the GPR UWB transmitted signal is to establish one dimension of position of an object within a given range;
  - The antenna is highly directional and pointed at the ground or substance to be penetrated;
  - Requires a single operator;
  - Uses the return signal to provide nothing more than the existence and one dimension of the position of an object.

UWB Communication Device

- A UWB device is a communication device is any signal modulation buried in the transmission can be changed in the field, except for providing GPS position
- The intended application of a UWB communication device is to transmit information from one location to another;
- The communication path is typically through free space
- While the antenna may be directional for mobile devices, it is usually non-directional

Synergy

- Further, we agree that GPS and UWB GPRs are synergistic and provide a very convenient way to obtain three dimensions of position of a buried object. This synergism also would provide the benefit of attaching GPS position to transmit device identification to allow location of a mal-functioning GPR.

Safety-Of-Life Requirement

- Since NTIA test data shows UWB interference to GPS at pulse repetition rates below 500 KHz and at power levels below Part 15 limits, additional rules and tests of those rules would have to be performed before any consideration of issuing a rule allowing UWB GPRs to operate in any portion of the GPS frequency band.